

# Energy Use at the Capitol

Energy built the Capitol, and energy has been used every day since it was finished. Its energy systems changed continually over the years, even before the building was completed.



Lighting the Capitol's exterior in 1900



# Heating the Capitol

The Capitol's first heating system used steam. Three large boilers in the sub-basement heated water, turning it into steam that traveled through pipes up to room radiators giving off heat.



Steam radiators in use today at the Capitol



# Heating the Capitol

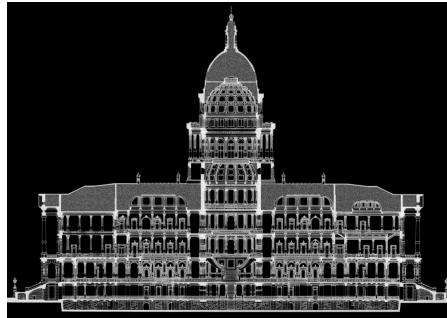
Since coal was abundant in Colorado in the late 1800s, it was used to fuel the Capitol's first boilers. When the boilers were running in the winter, the Capitol used one ton of coal each hour.



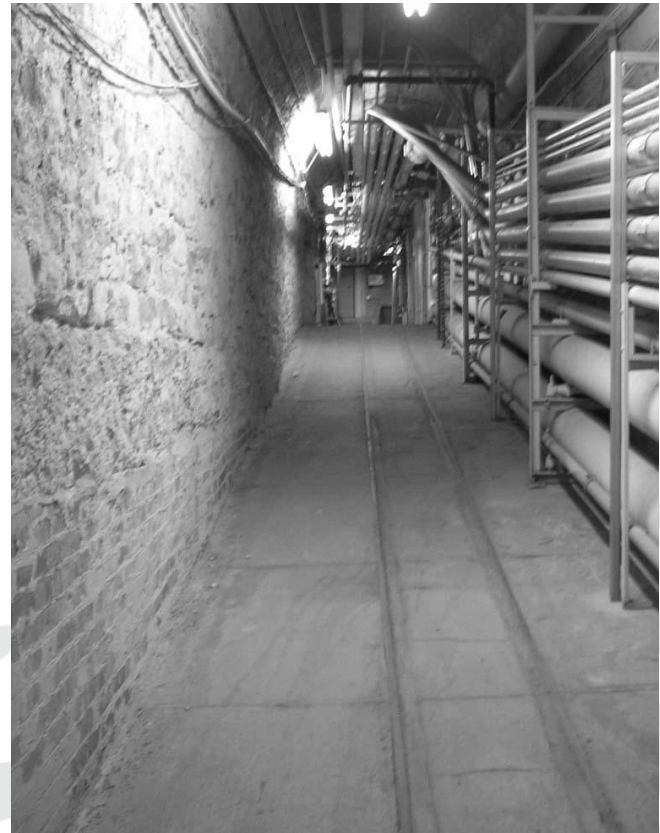
Each one of these cars is holding about one metric ton of coal



# Heating the Capitol



Delivering coal to the Capitol's front steps would have been noisy and dusty. Instead coal was brought to a small building behind the Capitol. Then it was taken by coal carts on small underground rail tracks to the boilers in the sub-basement.



Coal cart rails in the Capitol tunnels



# Heating the Capitol

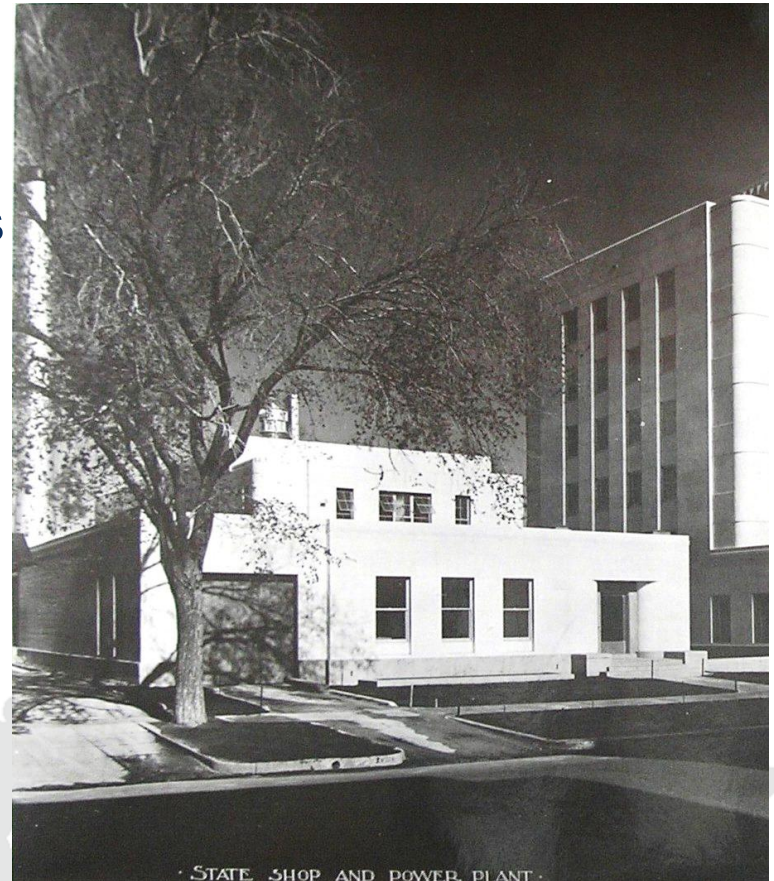


Tunnels carrying steam and electricity led from the 1914 museum building to the Capitol

Steam heat boilers could explode, and coal drifting down from the Capitol's chimneys darkened the building and bothered visitors. So state legislators decided to move the boilers away from the Capitol building. In 1914, a separate museum building was built with a heating and power plant beneath it which also provided power to the Capitol.

# Heating the Capitol

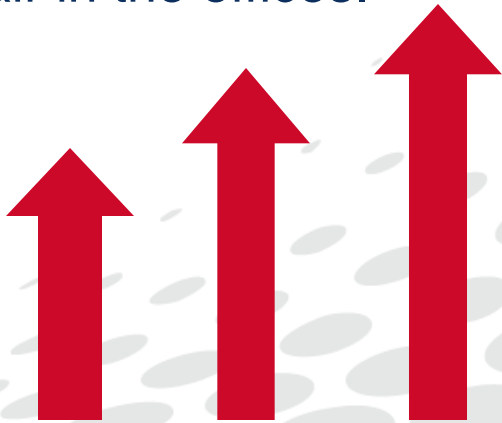
State government's heating and power needs continued to grow, and in 1940, a separate heating plant was constructed. It produced the steam heating and electricity for all the Capitol Complex buildings. The State turned over its power plant to Xcel Energy in the 1960s, and now purchases steam from them.



More tunnels were built to take power from this building back to the Capitol

# Cooling the Capitol

The Capitol needed cooling during warm weather. The architect designed the main feature of the Capitol - the Dome - to serve as a chimney to release warm air from the Capitol and circulate cooler, fresh air in the offices.



Dome windows could be opened to release hot air



# Cooling the Capitol

Fresh air was drawn up from open basement windows to wall shafts. This cooler air would move up into the office areas, where it would then escape through open transom windows above each door. The warm air would continue up to the Dome where it vented outside.

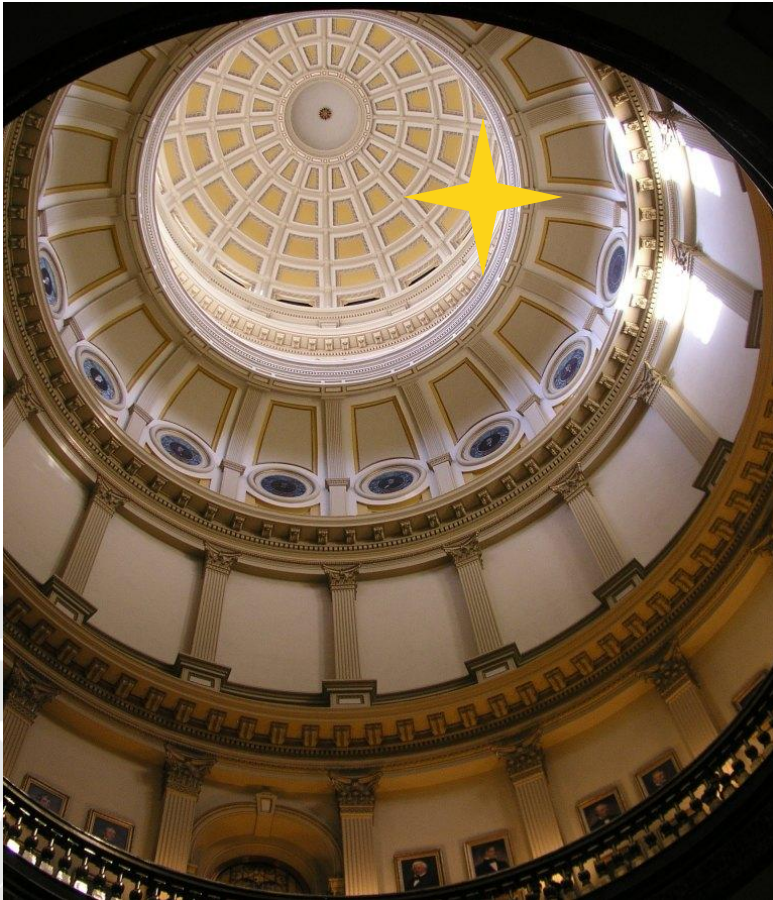


Transom windows above doors released hot air





# Lighting the Capitol



The dome provides light to the Rotunda and nearby hallways

The architect designed many features to furnish natural light to the Capitol. The Rotunda opened all the way from the basement to the Dome, providing light to nearby halls.



# Lighting the Capitol



The Capitol also has stained glass windows and large ceiling skylights that let in natural light.

Skylights in each wing provide natural light

# Lighting the Capitol

Although Coloradans wanted the Capitol to be the most up-to-date building in the state, electric power was not reliable when construction began. In order to avoid power outages, the Capitol's light fixtures used both gas and electricity.



Ornate light fixtures in the Governor's office

# Lighting the Capitol

Gas lighting could be dangerous. In 1899, a valve left open in the room just below the Governor's office filled up the area with gas. When an employee later struck a match, the fuel ignited and caused a huge explosion. In spite of its danger, gas continued to be used for lighting until 1930.



Gas knobs remain on many Capitol light fixtures



# Powering the Capitol



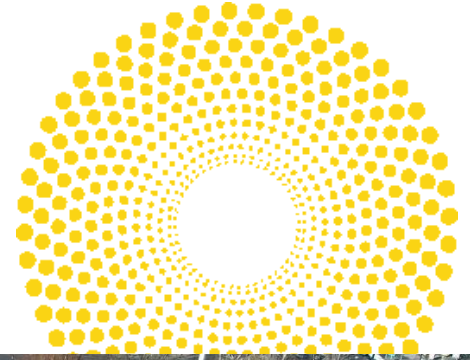
Newspaper reporters using phones  
in the Capitol press room

New technology and machinery placed increased power demands on the Capitol's energy systems. Air conditioning, communication systems, television, and computers require more power than the Capitol was originally designed to support.



# Powering the Capitol

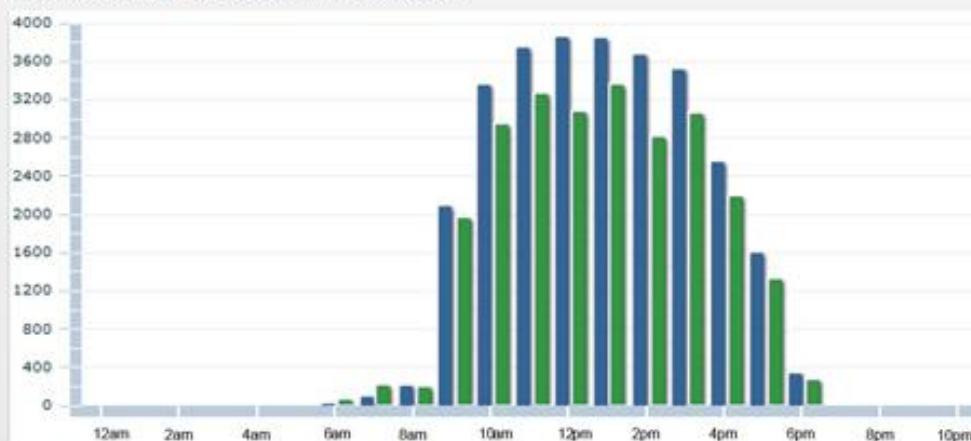
Today the Capitol is reducing its energy consumption with energy efficiency measures, using renewable energy sources, and decreasing the environmental impact of its operations. Colorado's State Capitol is the Nation's First LEED® Certified Capitol Building.



Solar panels on the Capitol's roof

# Colorado State Capitol Solar Array Energy Production

Hourly Energy Production in Watt Hours



■ Hourly Energy Total: South-Facing Array  
■ Hourly Energy Total: West-Facing Array

System Size: 10 kW Direct Current

Current Production: XX kilowatts

Total Production: XX kilowatt-hours

## Environmental Benefits

Over its lifetime so far, this system has...



Avoided the pollution an average passenger car emits over 20 days while driving its average daily distance each day.



Produced the energy to power 10 average homes for 1 day.



Governor's  
Energy Office





Department of Personnel & Administration



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**Energy Office**

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